‘Smart Telemetry’ as part of a MSDI

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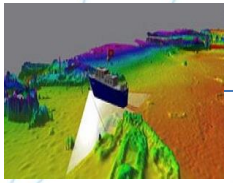
OceanWise Ltd

Port Maritime Information Infrastructure

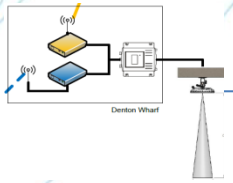
Base Mapping

Operational Data

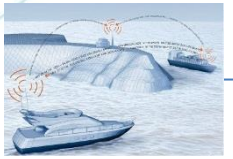
Hydrographic Survey



Tidal & Env. Monitoring

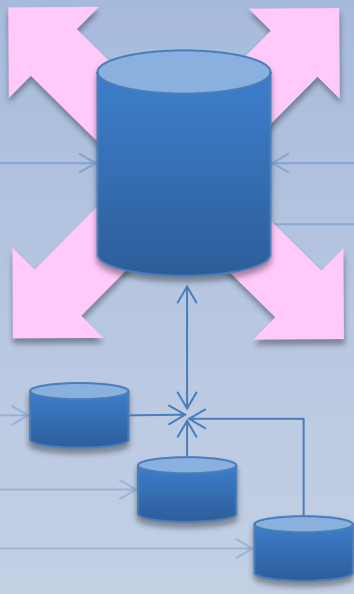


Vessel Tracking



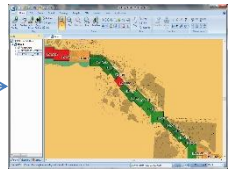
Open Systems / Programmable Interfaces

Shared Technologies & Services



Open Standards & Common Data Management System

ADO Interfaces / Web & Proxy Services



Situation Awareness

Productivity Tools

Compliance & Reporting

Portable Pilot Unit

VTS Display

What is telemetry?

- The word is derived from Greek roots: tele = remote, and metron = measure
- An automated communications process by which measurements are made
- Data is collected at remote or inaccessible points and transmitted to receiving equipment for monitoring

Why is it important?

- It allows you to access extremely **high capacity and volumes of data collected which can overwhelm simple monitoring systems**.
- It **greatly reduces operational costs**, lets you avoid unsafe places.
- Enables you to **get information in almost "real time"** without having to go visit sites to collect the data.
- **Lets you "look in" on processes and events remotely**, as they are happening and can alert you immediately if something changes.
- **Wireless telemetry can save resources** for your company (and the planet!)
- **Time and travel costs are saved -** manual measurement replaced with automated electronic processes.
- It can substantially **improve the efficiency of many processes**.

Key Requirements for “Smart” Telemetry

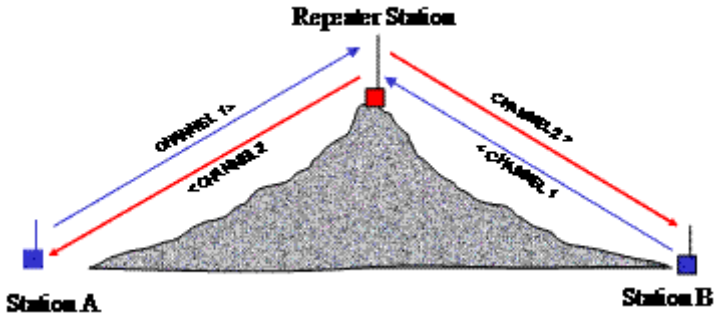
- Protocols – Handshaking
- Error Correction
- Power Management
- Local Alarms / Alerts
- Status Messages – Battery Levels, Signal Strengths
- Multi-Channel Communications
- Implement newer/faster Internet Protocols

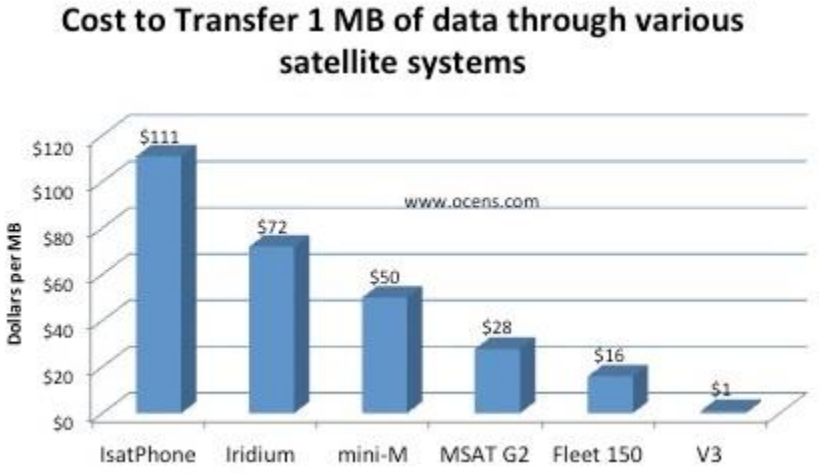
Reliable Data Transfer

- Multiple Protocols:
  - HTTP Post – quickest, most reliable!
  - Direct TCP Server / Client
  - FTP / sFTP Server / Client
  - Email / POP3 / SMTP
- ZIP Data compression
  - Reduces data costs
- SSH/SSL Encryption
  - Data Security
  - IT Departments like it !

Typical Challenges of Telemetry

- Power Consumption
- Base Stations
- Physical Obstructions
- Interference
- Band Width
- Running Costs
- Single Channel
- IT Departments!





What do we mean by “Real Time”?

- **Instant** *<10 secs*

  Power Generation Industry define “Real Time” as less than 3 seconds to respond to an event

  (we don’t see these sorts of requirements in Oceanography too often!)

- **Operational** *30 secs to a few minutes.*

  Maritime Operations (e.g. VTS Operators, Dredgers, etc.)

- **Monitoring** *30mins to several hours*

  Medium / Long-term Projects (e.g. Surveyors, Analysts)

Real Time Telemetry is not new

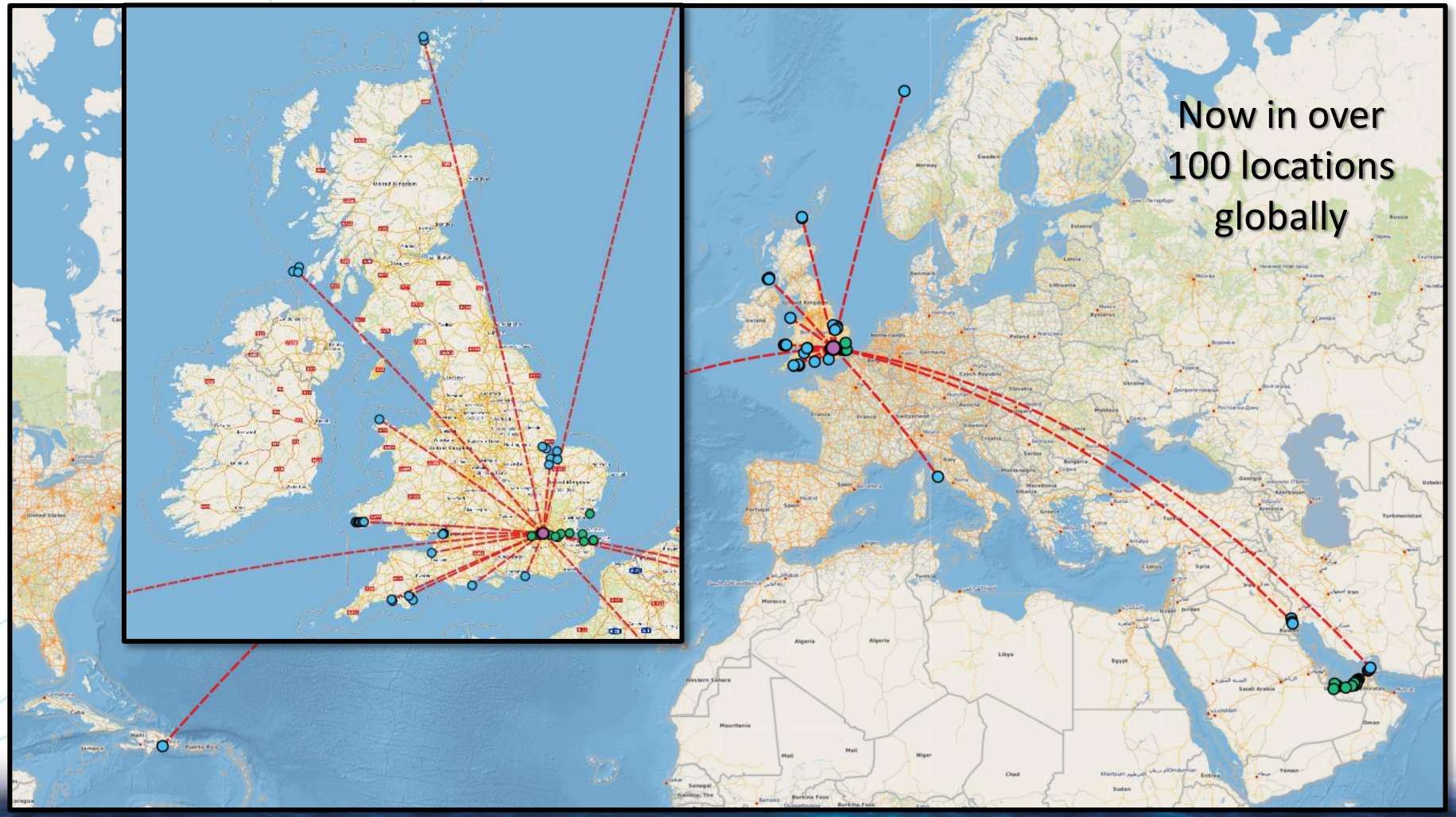
- UHF/VHF/HF Transceivers
- Satellite Comms/ Small Burst Data
- GSM Modems
- Direct TCP Connections
- Proprietary / Bespoke Systems
- Polled / SCADA / SDI12 Systems

Our approach

- Port-Log.net
- Ocean Database
- Port-Log System
- Design and Installations

We are instrument and transmission independent!

Port-Log.net – OceanWise Real Time Subscription Services

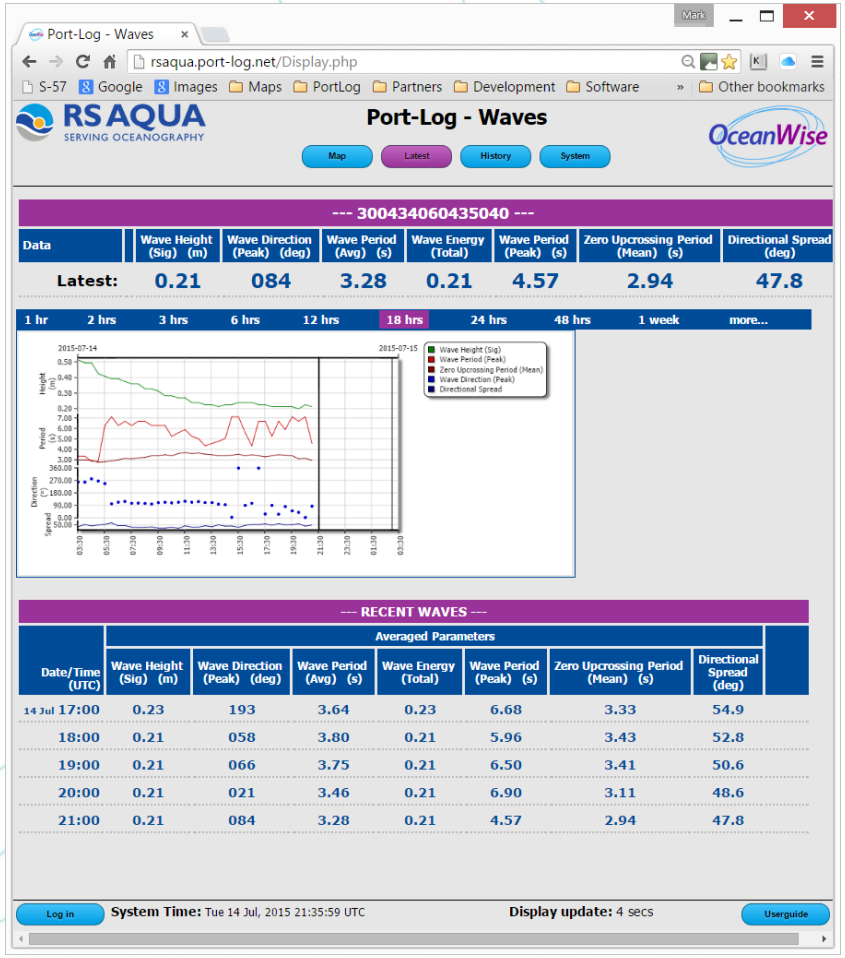


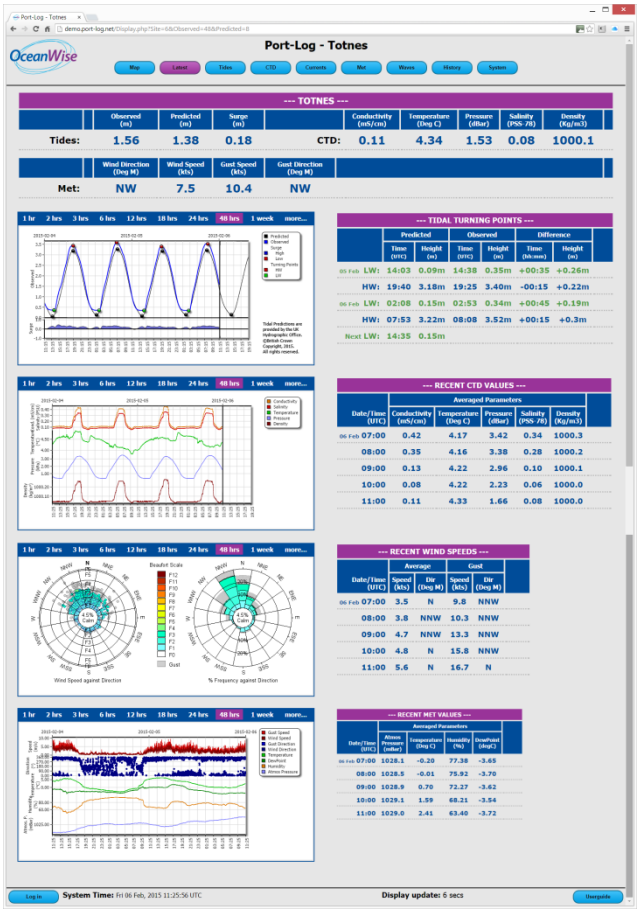
Port-Log.net

Cloud based management and publishing of environmental data…

- Reliable on-line hosted service
- Redundancy inherent in the service
- Secure data storage
- Doesn’t need the purchase of new server hardware

Accessible On-Line





Features

- Quick, easy and cost effective to set-up
- Central upgrades to the system – no need for customers to receive and install them!
- Can be “public” or “private” facing with secure log-in’s
- Web-based for ease of access to multiple users
- Customers can have own dedicated site

Features

- Flexible access levels (e.g. view only, view & download; view, edit & download)
- Works with almost any instrument for environmental monitoring – tide, wave, met, currents, temperature & density (CTD), Water Quality, AIS.
- Works with existing installed instruments

…and we haven't knowingly lost a data record since Port-Log.net went live in Oct 2010!

Telemetry as part of a Maritime Information Infrastructure Liverpool

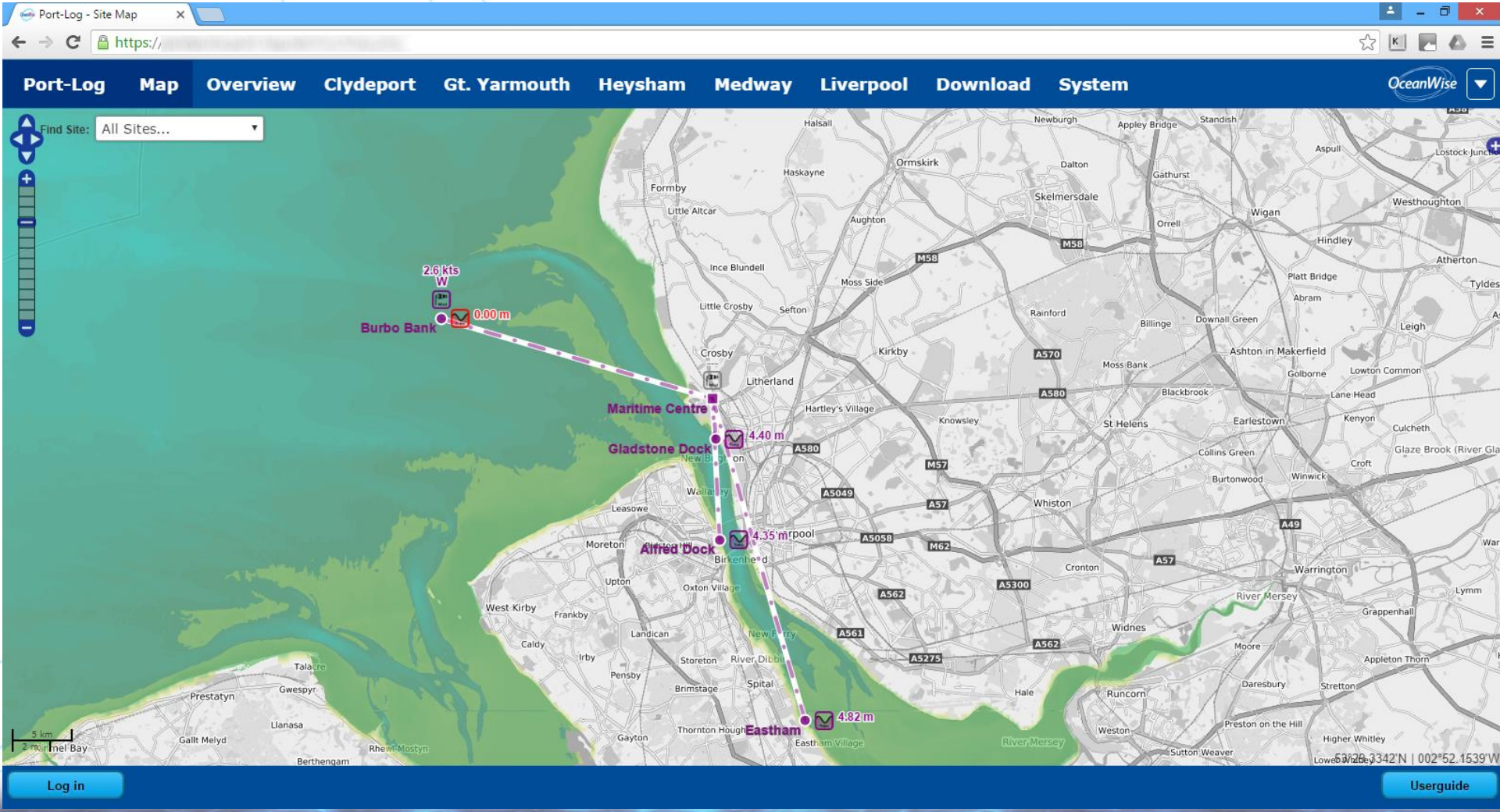
About the Project

- Peel Ports had sensors in place but unreliable display mechanism
- Smart telemetry installed feeding data to Port-Log in the cloud.
- Customer now has access to live data:
  - For VTS purposes
  - Downloadable data for hydrographic survey tidal corrections
  - Historic data for long-term harmonic analysis (for more accurate tidal predictions)

About the Project

- Sensors are the major cost associated with a new system
- Not having to replace them significantly reduced the cost of fixing their system
- No requirement to install, connect and set-up a server
- Subscription model reduced the cost of the project significantly

The Port Area



Tides

Port-Log - Eastham

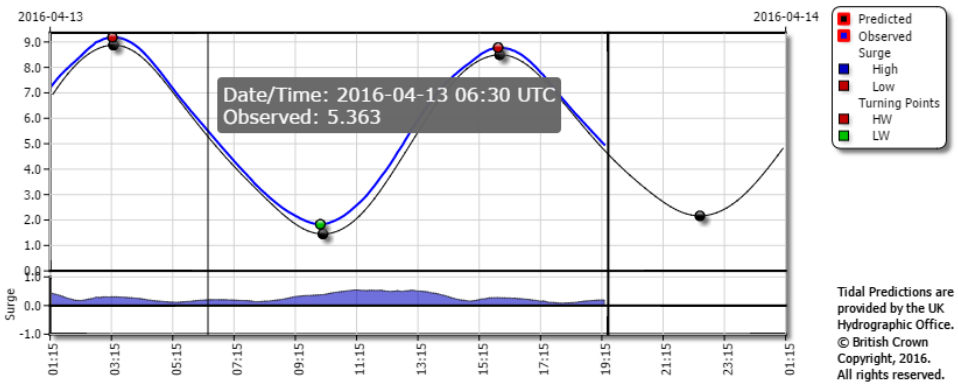
https://

Port-Log | Map | Overview | Clydeport | Gt. Yarmouth | Heysham | Medway | Liverpool | Download | System

--- EASTHAM - TIDES ---

	Observed (m)	Predicted (m)	Surge (m)	Alerts
Tides:	4.92	4.72	0.20	

1 hr | 2 hrs | 3 hrs | 6 hrs | 12 hrs | 18 hrs | 24 hrs | 48 hrs | 1 week | more...

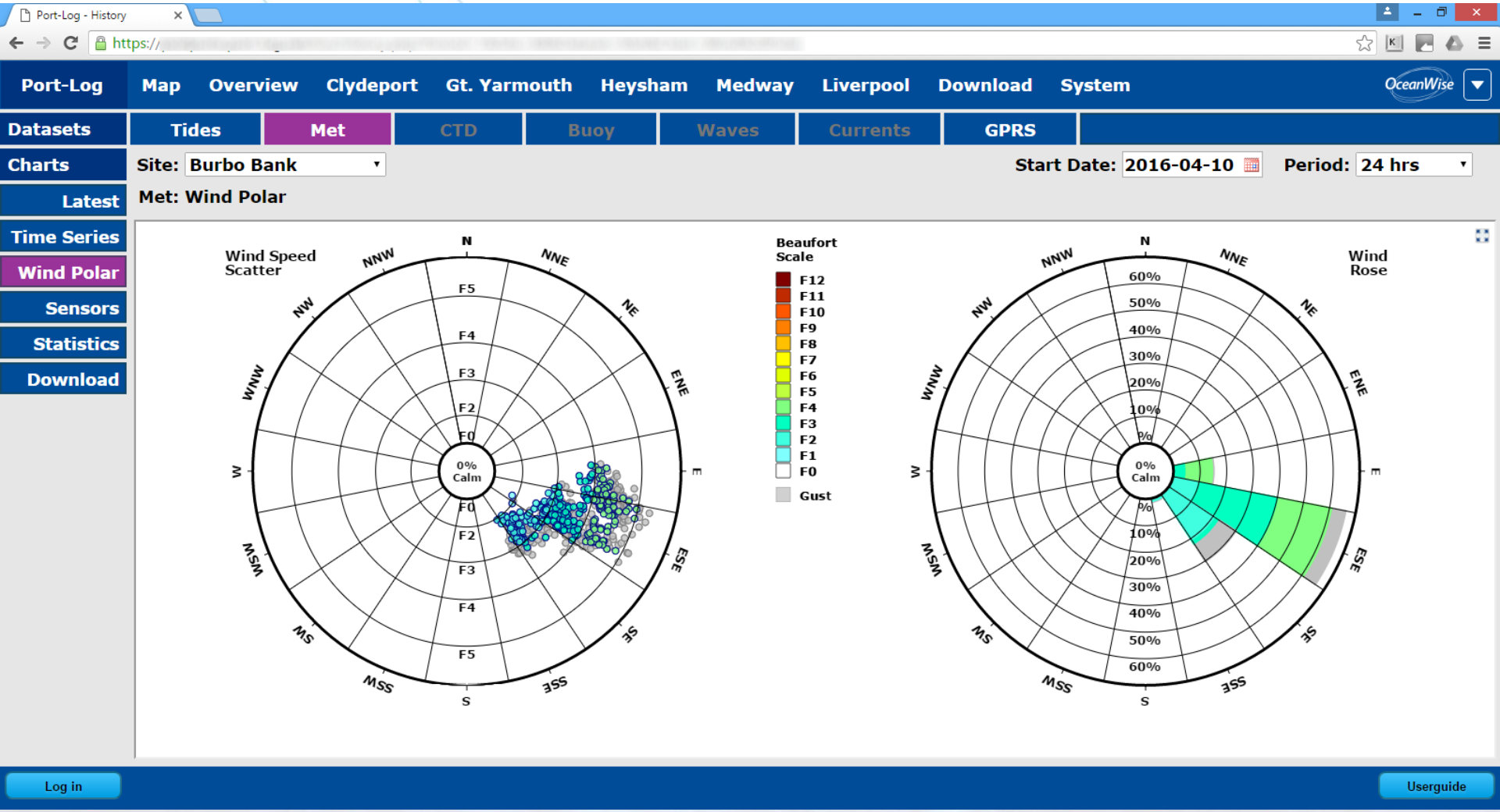


--- TIDAL TURNING POINTS ---

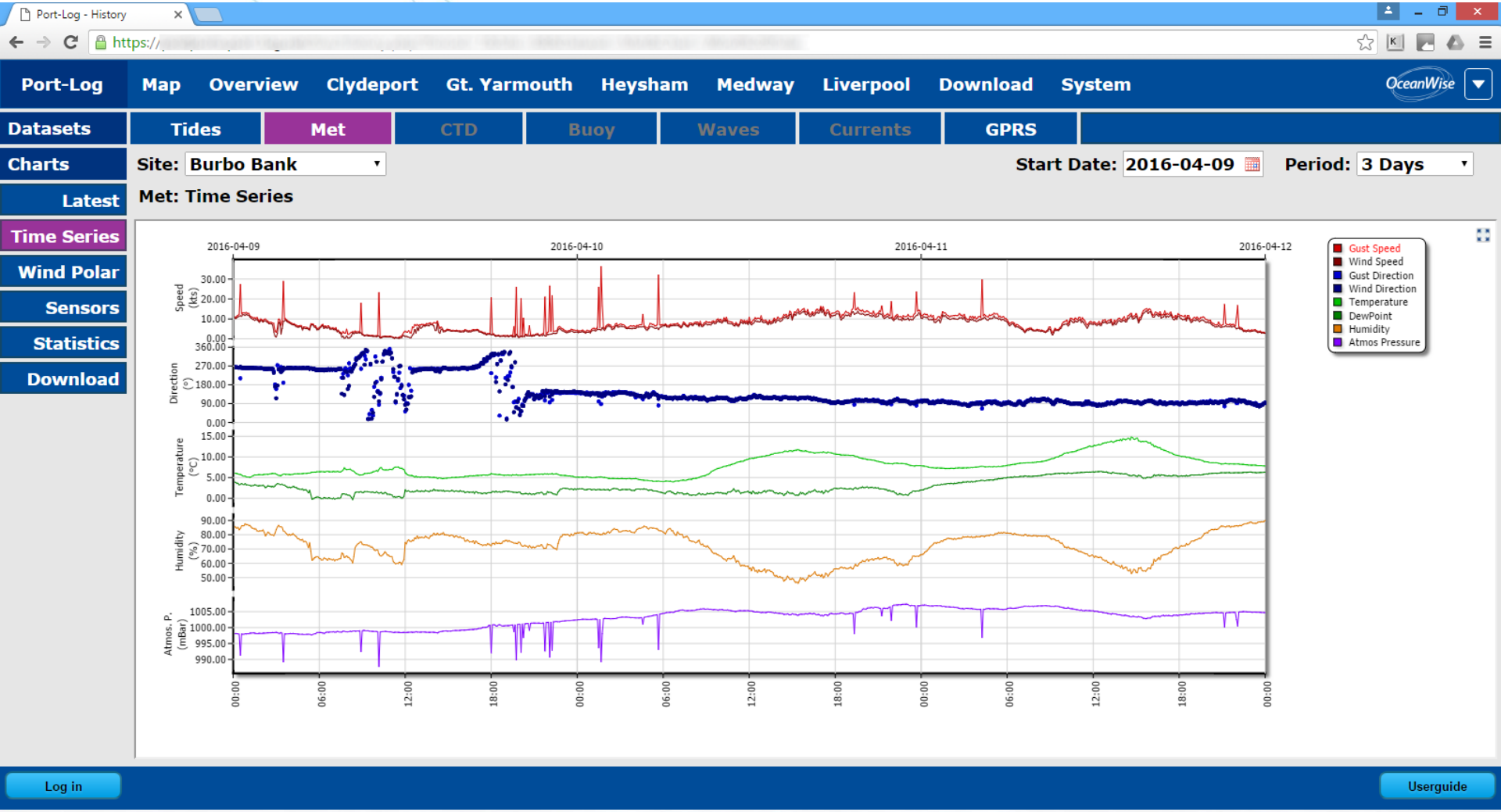
Turning Point	Predicted Time (UTC)	Predicted Height (m)	Observed Time (UTC)	Observed Height (m)	Difference Time (hh:mm)
12 Apr LW:	21:32	1.42	21:32	1.74	+00:00
13 Apr HW:	03:19	8.88	03:17	9.18	-00:02
LW:	10:09	1.45	10:04	1.83	-00:05
HW:	15:55	8.50	15:52	8.78	-00:03
Next LW:	22:27	2.16			

Log in | **System Time:** 19:28:42 UTC Wed 13 Apr, 2016 | **Display update:** 5 secs | Userguide

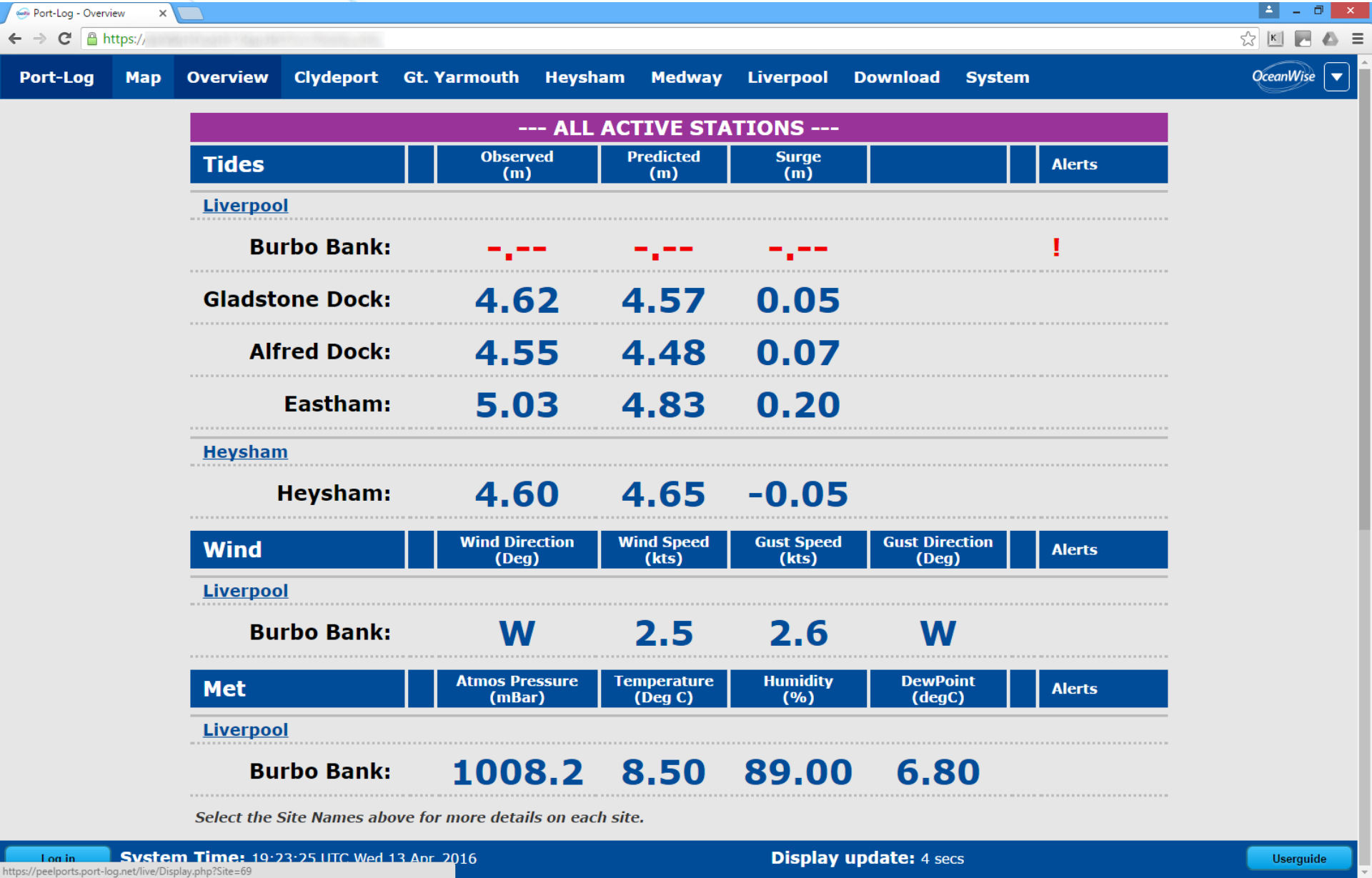
Meteorology



Meteorology (historical)



Port Log - Overview



OceanWise

where your data matters

Thank you

www.demo.port-log.net

www.oceanwise.eu